



Culvert Upgrade: Prevents Flooding, Provides Safety

Full Mitigation Best Practice Story

Sullivan County, New Hampshire

Sullivan County, NH - You would hardly notice the Quabbinnight Brook as it passes under Sugar River Drive in the City of Claremont, NH on a sunny day. But during heavy rain, stormwater often backed up at an undersized culvert under the road, resulting in massive flooding on the upstream side of Sugar River Drive.



Engineering studies showed that the culvert, a six foot corrugated metal pipe, did not have the capacity to carry a 25-year storm event. The culvert had already failed and the flow of the brook was no longer contained. The flooding caused deterioration of the roadway embankment and would eventually result in embankment failure.

The Claremont Department of Public Works continually patched the roadway above the culvert. Yet, it continued to sink two to three inches after patching, indicating a loss of bedding material around the failed culvert.

Flooding of Sugar River Drive isolated more than 150 households, more than 600 people, the Sullivan County Nursing Home, and the County House of Correction from the city. Emergency personnel, including fire, police, and ambulance services, would face a 25-minute detour through a neighboring town, but only if the alternate road was passable. School busses, heavy construction, and farm equipment also accessed Sugar River Drive.

The solution to the problem was to replace the failed culvert with a concrete box culvert.

The new, larger, box culvert is 12 by 5 by 40 feet with wing walls.

The project was funded by the Federal Emergency Management Agency (FEMA) Hazard Mitigation Grant Program (HMGP), which provides grants to states, Indian tribes, and local governments for long-term hazard mitigation projects following a major disaster declaration. Under this program FEMA pays up to 75 percent of the project cost. Either the state or the applicant covers the remaining 25 percent.

The project was completed in the spring of 2006. The total cost for the Sugar River Drive project was \$150,000. FEMA's share was \$112,500, and the local match was \$37,500.

Claremont officials report no more flooding problems on Sugar River Drive as of February 2009.

Activity/Project Location

Geographical Area: **Single County in a State**

FEMA Region: **Region I**

State: **New Hampshire**

County: **Sullivan County**

City/Community: **Claremont**

Key Activity/Project Information

Sector: **Public**
Hazard Type: **Flooding**
Activity/Project Type: **Flood Control**
Structure Type: **Concrete, Reinforced**
Activity/Project Start Date: **09/2005**
Activity/Project End Date: **06/2006**
Funding Source: **Hazard Mitigation Grant Program (HMGP)**
Application/Project Number: **PDMC-PJ-01-NH-2005-003**

Activity/Project Economic Analysis

Cost: **\$150,000.00 (Actual)**

Activity/Project Disaster Information

Mitigation Resulted From Federal
Disaster? **No**
Value Tested By Disaster? **Yes**
Tested By Federal Disaster #: **No Federal Disaster specified**
Year First Tested: **2007**
Repetitive Loss Property? **Yes**

Reference URLs

No URLs were submitted

Main Points

No Main Points were entered.



Concrete box culvert under Sugar River Drive